UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/839,164 | 04/23/2001 | Vladimir Kozlov | 1331-338 | 6786 |

23117 7590 06/15/2004

NIXON & VANDERHYE, PC
1100 N GLEBE ROAD
8TH FLOOR
ARLINGTON, VA 22201-4714

| EXAMINER | |
|---|---|
| CARLSON, KAREN C | |
| ART UNIT | PAPER NUMBER |
| 1653 | |

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 06102004

Application Number: 09/839,164
Filing Date: April 23,2001
Appellant(s): Kozlov et al.

Gary R. Tanigawa
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed April 15, 2004.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

***(3) Status of Claims***

The statement of the status of the claims contained in the brief is correct.

***(4) Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is substantially correct in that the after-final response filed December 3, 2003 did not amend the claims but rather presented additional arguments. This after-final response has been entered into the record.

***(5) Summary of Invention***

The summary of invention contained in the brief is correct.

***(6) Issues***

The appellant's statement of the issues in the brief is correct.

***(7) Grouping of Claims***

Appellant's brief includes a statement that claims 30-32 stand or fall together.

***(8) Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

***(9) Prior Art of Record***

Listing of the prior art:

Tame et al. 1991; J. Mol. Biol. 218:761-767.

Hoffman et al. USP 5,449,759.

***(10) Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the Appellant regards as his invention.

Claim 30-32 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellant regards as the invention. Claims 30-32 are indefinite because it is not clear what present in the

milligram amounts means, as a composition comprises a concentration of a particular item, such as grams/liter, for example.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the Appellant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the Appellant for patent.

Claims 30-32 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tame et al. (1991; J. Mol. Biol. 218:761-767).

Tame et al. teach alpha -globin in a buffer solution, which is a pharmaceutically acceptable carrier (page 763, col. 1, para. 1). This alpha -globin was diluted to 5 mg/ml with the buffer and then diluted further to 0.25 mg/ml with a potassium buffer. Beta-globin was added to the alpha -globin solution in the presence of hemin dicyanide. The beta-globin added to the alpha -globin solution was most likely in the same buffer as the alpha -globin because it was added in "molar excess", indicating that the beta-globin was in solution and in at least the concentration of the alpha -globin. Claims 30 to 32 are anticipated because there is no concentration provided in the claims, and enough of the solutions taught in Tame et al. can be made to comprise 0.1 mg to 6 g of globin. For example, 1 ml of the alpha globin solution at either 5 mg/ml or 0.25 mg/ml would meet the amount of globin in the solution claimed.

Claims 30-32 stand rejected under 35 U.S.C. 102(e) as being anticipated by Hoffman et al. (USP 5,449,759).

Hoffman et al. teach alpha -globin diluted to 0.3 mg/ml potassium phosphate buffer, which is a pharmaceutically acceptable carrier (col. 18, line 28; Claim 30). Beta -globin, dissolved in a tris buffer solution at 5 mg/ml (col. 18, line 25; Claim 31), was added to this alpha -globin (col. 18, line 36; Claim 32). Claims 30 to 32 do not recite a concentration and enough of the solutions taught in Hoffman et al. can be made to comprise 0.1 mg to 6 g of globin.

There is sufficient evidence that the product disclosed by the references is Appellants' product, and the burden is shifted to Appellants to distinguish the two. See *In re Best*, 195 USPQ 430 and *Ex Parte Gray* 10 USPQ 2d 1922, 1923.

***(11) Response to Argument***

Claim 30-32 stand rejected under 35 U.S.C. 112, second paragraph.

Appellants argue that the composition has 0.1 mg to 6 g of the recited globin chain, regardless of the concentration and thus there is no ambiguity as to whether a given composition is included or excluded from the claim. Further, that no authority or reason has been given for the assertion that the recitation of amounts is not permitted in claims directed to compositions. It is standard chemical and pharmaceutical practice to recite concentrations when discussing compositions. One need only look at the label of a solution of over-the-counter drugs to see this practice, or even the claims of Appellant's USP 5,939,391. Is Appellant implying that 0.1 mg of globin chain in a room full of pharmaceutical carrier is the same as 0.1 mg of globin chain in a milliliter of pharmaceutical carrier? Essential elements in a solution are presented as a concentration, not as an amount. It appears that Appellants may be wanting to administer 0.1 mg to 6 g of globin chain to a subject in a single dose, such as when one takes an

aspirin for a headache. However, that is not what is being claimed. Rather, any part of that pharmaceutical composition can be administered.

Claims 30-32 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tame et al. (1991; J. Mol. Biol. 218:761-767).

Claims 30-32 stand rejected under 35 U.S.C. 102(e) as being anticipated by Hoffman et al. (USP 5,449,759).

Appellants argue Tame et al. and Hoffman et al. together.

Appellants argue that the references do not disclose the recited amount of globin chain; thus, because they do not disclose the making of a solution containing from 0.1 mg to 6 g of globin chain, and do not anticipate the claims. Just the single milliliter of Tame et al.'s or Hoffmann et al.'s solution meets the claim amount recitation; it is not clear what exactly Appellant is arguing. For example, Claim 31 reads that a composition will consist essentially of alpha globin in a pharmaceutically acceptable carrier. So, alpha globin is the active ingredient and anything else is inert or nonessential. This jug/beaker/vial/syringe of solution must have the alpha globin chain present in 0.1 mg to 6 g. The composition must be suitable for subcutaneous administration, meaning it can be administered s.c. There is no recitation that the composition in total comprise 6 g of alpha chain in an amount of carrier for single dose s.c. injections. And even if it did, 1 ml of Tame et al.'s or Hoffmann et al's solution would meet this claim limitation.

It appears that Appellants are trying to argue that one does not know if Tame et al. or Hoffmann et al. made 10 mls of solution, 100 mls of solution, or a liter of solution, for example, and therefore the recitation of 5 mg/ml (or 0.25 mg/ml or 0.3 mg/ml) does not say how many grams of globin are in the overall solution. Let's use the three volumes just recited by the Examiner, because it is very plausible that these standard volumes used at the research bench were used by Tame et al and/or Hoffman et al. At 10 mls, 50 mg of globin would be present. At

100 mls, 500 mg (0.5 g) would be present. In a liter, 5 grams of globin. All of these amounts meet the claim limitations.

Appellants urge that both Tame et al. and Hoffman et al. produced the globin chains in E.coli and the purification of the globin chains do not remove endotoxins; thus, the buffer solutions of Tame et al. and of Hoffman et al. are not suitable for sc administration. At page 17 of the specification, such expression in E. coli is a prefered embodiment:

> In an advantageous embodiment, IMPROL is the product of prokaryotic or eukaryotic host expression (e.g., by bacterial, yeast. higher plant. insect and mammalian cells in culture) of exogenous DNA sequences obtained by genomic or cDNA cloning or by gene synthesis. that is, in an advantageous embodiment INPROL is "recombinant INPROL". The product of expression in typical yeast (e.g., Saccharomyces cerevisiae) or prokaryote (e.g., E. coli) host cells are free of association with any mammalian proteins. The products of expression in vertebrate (e-g-,non-human mnmmalian (e.g., COS or CHO) and avian) cells are free of association with any human proteins. Depending on the host employed, polypeptides of the invention may be glycosylated or may be non-glycosylated. Polypeptides of the invention optionally also include an initial methionine amino acid residue (at position -1).

Therefore, this argument is not persuasive because the specification states that it is desireable to express the globin chains in E. coli.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

KAREN COCHRANE CARLSON, PH.D
PRIMARY EXAMINER

***
June 10, 2004

Conferees:

CHRISTOPHER S. F. LOW
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Michael G. Wityshyn (CONFEREE)
Supervisory Patent Examiner
Technology Center 1600

Nixon & Vanderhye P.C.
8th Floor
1100 N. Glebe Rd.
Arlington, VA 22201